

Herbal Databases for PDAs: Advice from Two Librarians

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ABSTRACT. With more Americans using herbal remedies and dietary supplements, health practitioners are striving to increase their knowledge in this area. Health care providers are also increasingly turning to handheld computers for access to medical information at the point of care. This article describes databases containing information on herbs and dietary supplements for personal digital assistants. While the authors recommend arranging for a free trial of each product, they make some general purchase recommendations. NaturalDB (Natural Medicines Comprehensive Database) is the most complete source while ePocrates Rx Pro will suffice for the practitioner who occasionally seeks herbal information.

Introduction

Few changes have affected health care as profoundly, or occurred as rapidly, as complementary and alternative medicine (CAM).¹ Increasingly, Americans are turning to herbs and dietary supplements to maintain or improve their health. Although estimates vary, the use of herbal remedies increased as much as 380% between 1990 and 1997.² Additionally, many American adults are believed to use herbs, dietary supplements, or both along with prescription drugs.³ There is growing evidence that herbals and supplements taken together with prescription drugs may cause clinically serious adverse effects.³

Because people who take conventional drugs are also increasingly using herbs and supplements, the need for rapidly available and reliable information about potential drug interactions has greatly escalated. Health care providers increasingly are using personal digital assistants (PDAs) to access drug information at the point of care. PDAs offer convenience, portability, currency, and ease of searching.⁴ Because physicians who use PDAs can rapidly find the information they need at the patient's bedside, proponents of PDAs believe these handheld devices have the potential to reduce medication errors.⁵ According to an American Health Information Management Association survey, nearly 70% of physicians review pharmaceutical information using their PDAs before they prescribe medication, and they believe the use of handhelds significantly improves patient care.⁶ Not only do physicians find PDAs advantageous; insurance companies and other health care payers report that their costs decrease when doctors have ready access to pharmaceutical information that includes less costly generic equivalents.

Pharmaceutical companies can now “push” detailed information about drugs to physicians via the PDA. Drug representatives used to personally deliver such information to physicians.⁶

Several articles have evaluated drug databases designed for PDAs.^{7, 8} Although many drug databases include some information about herbs and supplements, several databases exclusively focus on herbs and supplements. In this article, the authors will describe the content, ease of use, and special features of the most commonly used herbal databases that can be downloaded to PDAs. Because the authors are not pharmacists, comments will not be directed at the pharmacological or substantive accuracy of the database contents. However, physicians and pharmacists have reviewed the content of all the databases included.

In this article, the authors will make recommendations about databases that may be appropriate for specific user groups. Because downloading databases to the PDA may be difficult or time-consuming, the process of downloading will be discussed separately from overall user-friendliness. The comparable print and/or online versions of many of these products already have solid reputations in the medical community.

As a means for comparison, the authors searched the databases for the following herbs: kava (Scientific Name: *Piper methysticum*), a substance used to treat anxiety; and roseroot (Scientific Name: *Rhodiola rosea*), an herbal supplement taken to increase energy and mental capacity. Before 2001, kava was one of the top selling herbs worldwide. After reports of liver toxicity in 2001, Germany, Canada, and the United Kingdom banned kava, and most other European countries restricted its sale. At this time, kava is still legal in the United States, but most companies have stopped selling it.⁹ The authors chose kava to determine whether the databases would contain the recent information about liver toxicity.

Roseroot, on the other hand, was designated by the American Herb Association in 2002 as an “up and coming herb.”¹⁰ The authors thought it would be interesting to see if any of the reviewed databases contained information about this herb.

Databases are listed alphabetically by producer.

Product Reviews

ePocrates Rx Pro™

<<https://image.epocrates.com/index1.html>>

Price: \$59.99

Operating System: Palm OS and Pocket PC

ePocrates Rx, which was developed in 1999, was one of the first handheld drug databases produced. ePocrates Rx remains a free, comprehensive drug database that contains peer-reviewed information on over 2,800 drugs and is compiled by physicians and pharmacists. In October 2002, the ePocrates company released a second database, ePocrates Rx Pro (Rx Pro), which the company describes as its “premium” database. When users download ePocrates Rx, they automatically receive a free trial of Rx Pro for 30 days. According to Edward Fang, MD, Editor-in-Chief of ePocrates Inc., as of October 2, 2003 there were approximately 90,000 users of Rx Pro.¹¹ This review focuses on Rx Pro.

Installation: Due to clear instructions, Rx Pro installs smoothly. Because the database size is rather large, downloading can range anywhere from 20 to 40 minutes depending upon the host computer’s connection speed.

Content: ePocrates Rx Pro includes monographs about substances used in alternative medicine along with an infectious disease guide, clinical tables, and a clinical calculator. Information about drug interactions, adverse reactions, reported uses, cautions, dosages, and synonyms is provided.¹² The ePocrates Web site indicates that Rx Pro includes the most common alternative remedies and has a partnership with the Natural Medicines Comprehensive Database “to offer the most up-to-date, evidenced-based content, which has been distilled for optimal use at the point-of-care.”¹³

Data regarding kava includes reported uses and dosages, when to avoid taking the herb or when to use caution, adverse reactions, synonyms, and use in pregnancy and lactation. Drug interactions are listed along with advice on how to avoid them. No references are given.

The study authors found one serious omission about kava, namely the Rx Pro monograph, unlike the Natural Medicines Comprehensive Databases, does not indicate that kava is “possibly unsafe when used orally because of concern that kava preparations can induce hepatotoxicity and liver failure.” Rx Pro does indicate that kava should be avoided when a patient has a history of hepatitis. Alternative medicine data in Rx Pro is updated quarterly.

The information in Rx Pro is much less detailed than the information in the Natural Medicines Comprehensive Database. Rx Pro does not claim to have the same information as the larger database. In fact, Rx Pro has a link from its Web site to the entire Natural Medicine Database, which can be accessed for an additional fee.

Unique Features: Rx Pro has a powerful drug/alternative medicine interaction tool known as “multitask” that allows users to check the interactions of up to 30 drugs and alternative remedies at one time. Another helpful feature permits practitioners to add their own notes to the information provided in the database.

In a Nutshell: ePocrates Rx Pro is recommended for its ease of use, content, and relatively low cost. Although not the place to find comprehensive detailed information, this database provides a means for the busy clinician to look up the basics. The 30-day free trial is a definite plus.

Lexi-Natural Products™

<<http://www.lexi.com/web/index.jsp>>

Price: \$75.00

Operating System: Palm OS and Pocket PC

Lexi-Natural Products indexes over 175 common natural products including herbs, vitamins, minerals, and nutraceuticals. The database also includes natural substances such as glandular extracts and amino acids. Like the popular print Lexi-Comp *Natural Therapeutics Pocket Guide*, this software package covers the use, dosage, forms, pharmacology, warnings, toxicities, and reported and theoretical interactions associated with these products.

Installation: Installation of Lexi-Natural Products proved to be more difficult than it appeared at first glance. Although customer service was easy to reach by phone, the service representative also had difficulty securing the database download.

Content: Once a user adapts to the layout of the product and how to maneuver, it is easy to use. There are two indexes available for searching: the main index and the natural product categories. The “jump” feature, which the authors originally believed would lead to another herb, provides an opportunity to switch information categories about the herb (from name to dosage to interactions). Kava is covered sufficiently, including information about toxicities and warnings

about hepatotoxicity.

Unique Features: The “jump” feature and the level of referencing are unique to Lexi-Comp products. Brief references are embedded in the monographs with more complete references at the end of the contents.

In a Nutshell: Somewhat difficult to download and install but may be worth the effort for those who like the layout and in-depth coverage of common natural products.

mobileMICROMEDEX™

<<http://www.micromedex.com/products/mobilemicromedex/>>

Price: Free for health care professionals associated with a facility that subscribes to the MICROMEDEX Healthcare Series. \$74.95 for others.

Operating System: Palm OS and Pocket PC

mobileMICROMEDEX is a PDA product from the company Thomson MICROMEDEX. MICROMEDEX produces a variety of clinical information databases and is perhaps most recognized for their drug information sources. mobileMICROMEDEX is available for free to health care professionals who are employed in an institution subscribing to the MICROMEDEX Healthcare Series. Individuals not affiliated with a subscribing institution may purchase an individual subscription for \$74.95 at PalmGear.com, Handango.com, or MedicalPocketPC.com.

Installation: Installation of mobileMICROMEDEX is fairly straightforward and quick, although a facility’s customer number is required.

Content: The PDA resource, mobileMICROMEDEX, includes information about drugs, alternative medicines, acute care, and toxicology. The alternative medicine section includes monographs about nearly 300 popular herbal and dietary supplements. Users may search for products by generic name, trade name, or by therapeutic class. As with other MICROMEDEX databases, the monographs are based upon research from health care journals, information from medical texts, and information from drug manufacturers and professional organizations. mobileMICROMEDEX contains essential information about kava: dosage and administration, substance form, indications, contraindications, adverse effects, drug interactions, and information concerning pregnancy and breast-feeding. Kava’s association with liver failure is listed in the adverse effects section; however, no references or detailed information is provided.

Unique Features: Information within mobileMICROMEDEX is updated quarterly. The auto-update feature permits users to receive updated information every time they hot-sync.

In a Nutshell: It is easy to install and use mobileMICROMEDEX. For health care professionals who are employed at an institution that subscribes to the MICROMEDEX Healthcare Series, this database is worth downloading.

Skyscape

<<http://www.skyscape.com/index/home.asp>>

Skyscape is a leading provider of fee-based medical reference titles for the PDA, several of which contain information about herbs and dietary supplements. Purchasers of more than one Skyscape database can cross-search other Skyscape databases using Skyscape’s SMARTlink™ technology.

Installation: Installation of Skyscape products is moderately difficult. When a person

decides to purchase a product, Skyscape e-mails a serial number, user identification code, unlock code, and instructions for installation to the purchaser. All codes consist of digits and letters, and the codes are long and complex. Instructions are somewhat confusing. Several attempts may be required before successful installation is accomplished. Skyscape does offer good technical support; however, access to this department may be hit-or-miss because the telephone number is frequently busy. A helpful feature of all Skyscape products permits practitioners to add their own notes to information contained in the database. A disadvantage of all Skyscape products is limited access to full database contents when using a product on a trial basis. A potential purchaser can only access 10% of the database contents during a trial.

Depending on the specific product, Skyscape updates products on a varying schedule, including monthly or annually. Skyscape notifies users of the updates, which can then be downloaded. Downloading is easily done. Subscription prices include updates for one year.

Skyscape products included in this review are: NaturalDB™, Guide to Natural Products™, 5mHerbal™, NHerbal 04™, and HerbalIx™.

NaturalDB (Natural Medicines Comprehensive Database)

Price: \$92.00

Operating System: Palm or Pocket PC

Content: NaturalDB is based on contents of The Natural Medicines Comprehensive Database, available online or in print formats. The Database is promoted by the publisher as the scientific gold standard for evidence-based information about alternative remedies. A staff of physicians and pharmacists has compiled detailed information on more than 1,000 herbs, vitamins, minerals, and supplements. The database links to brand names containing these products or combinations of them. There are two indexes, a main index and a brand name index.

With respect to kava, NaturalDB includes alternative names, links to brand name products containing kava, evidence-based safety ratings, information about usage in pregnancy and lactation, effectiveness ratings, adverse reactions, interactions with other herbs, information about supplements and foods, laboratory tests and conditions, and dosages. References and mechanisms of actions are included in the Web-based version, but not in the PDA version. NaturalDB was the only database evaluated for this review that contained information about roseroot. The information about roseroot is just as detailed as the information about kava. One drawback about this product is that key information about each herb is not prominent. Information about kava's association with death from liver toxicity is buried in the adverse effects section. If busy practitioners do not check the safety information, they could miss this important fact.

Unique Features: Easy to navigate, thanks in part, to sidebars that guide the user. NaturalDB is updated quarterly.

In a Nutshell: For the user who needs comprehensive, detailed, and practical information about alternative remedies on a PDA, there is no better product.

GNP (Guide to Natural Products)

Price: \$19.95

Operating System: Palm or Pocket PC

GNP, also published by Facts and Comparisons in print form, includes 125 monographs about the most popular herbal products. Vitamins and minerals are not included.

Contents: In the PDA version, each monograph contains scientific and common names; a brief discussion of an herb's uses and side effects; links to references; and sections on botany, history, pharmacology, and toxicology. In addition to the main index, organism and scientific name indices are alphabetically organized. GNP contains four appendices: drug interactions; interactions that can occur specifically with St. John's Wort; a list of herbal diuretics; and an annotated list of books, periodicals, and databases about herbs. GNP is not updated on a regular basis. Facts and Comparisons will release a new edition when content significantly changes.

Although practitioners may find some historical information about kava interesting, such as the fact that traces of kava extract have been identified by mass spectrometry on artifacts from Fiji, it is difficult to imagine why this information is needed at the patient's bedside. The section about kava toxicity does not mention the possibility of liver failure. There is no information about dosages.

Unique Features: A therapeutic index provides clinicians with alternatives to conventional remedies. The ability to search for a specific herb-drug interaction is a useful feature—if a user can find it. This interaction feature is not located in the initial drop-down menu; instead, it is buried within the table of contents. After this feature is found, there are references and advice about managing interactions.

In a Nutshell: It's difficult to see how this product is useful to a practitioner at a patient's bedside. If a practitioner wants to know the history or botany of an herb, he or she would be better served by books on the topic. Navigation is difficult, and it takes time to determine how to arrive at the main index. GNP is an optional purchase for PDAs. Spend less money (\$10.95) on the book that has beautiful illustrations.

5mHerbal (The 5 Minute Herb & Dietary Supplement Consult)

Price: \$69.95

Operating System: Palm or Pocket PC

5mHerbal covers herbs, minerals, vitamins, amino acids, probiotics, enzymes, over-the-counter hormones, and other dietary supplements commonly used by consumers. This PDA product is similarly organized as the other books and databases in this series, such as *Griffith's 5 Minute Clinical Consult* published by Williams & Wilkins.

Content: Each entry begins with a ten-second introduction about what the product is, how it is used, evidence regarding efficacy, and adverse effects. Users can find Latin and biological names, a description of the herb or supplement, a review of clinical trials with links to references, adverse reactions, dosage forms, the answers to common questions and a list of references. Because information is presented in outline form, 5mHerbal is very easy to navigate. There are no regular updates to this product. Users must wait until an updated edition is made available.

The brief introduction about kava states that although clinical evidence suggests kava may reduce anxiety, adverse effects include “dystonic reactions, hepatotoxicity.”

Unique Features: The outline format of 5mHerbal is useful as is the information about clinical trials. 5mHerbal also provides several nutritional tables, such as recommended dietary allowances.

In a Nutshell: At \$69.95, this database is a good place for practitioners to quickly find needed information in an easy-to-use product.

Nherbal04 (Nursing 2003 Herbal Medicine Handbook)

Price: \$41.95

Operating System: Palm or Pocket PC

A well-known pharmacy librarian once said in a continuing education course about drug information that there was no need for separate drug databases for nurses. She felt that nurses needed the same information as physicians and other health professionals, and should be using the same sources. Today several print herb compendia are specifically compiled for nurses. With Nherbal04, Skyscape has produced a database for PDAs geared specifically for nurses with patients who use alternative remedies.

Content: NHerbal04 provides information about 300 herbs and dietary supplements. In addition to the basic information covered in other herbal databases, unique aspects of this source include entries describing how alternative substances influence lab results and sections about nursing considerations and patient teaching. There are no references.

Life-threatening adverse effects are highlighted. Interactions are categorized as herb-drug, herb-herb, herb-food and herb-lifestyle; this latter includes herb interactions with alcohol. Sections about nursing considerations and patient teaching contain essential safety information such as what patients should know before they take an herbal remedy.

Unfortunately, information contained in this database can be difficult to locate. There is a main index, an index by herb name, and a table of contents. After considerable time, the authors realized that users can search by disease and condition in the main index as well as by specific herb. For example, users looking for alternative remedies to treat the common cold can search for “common cold” in the main index as well as, for example, “echinacea.” There are no updates to this product until the publisher issues a new edition.

Next to the NaturalDB, NHerbal04 has the most extensive up-to-date information about kava.

Unique Features: While navigation could be improved, NHerbal04 contains much unique information not found in other sources. Sections about nursing considerations and patient teaching are especially noteworthy. Many useful appendices are offered, including a list of herbs that have been declared unsafe by the Food and Drug Administration (FDA). Serious adverse effects are listed in boldface type; this is especially useful for the health practitioner with time constraints.

In a Nutshell: The only thing missing from NHerbal04 is a summary of the research evaluating product effectiveness. This database is also reasonably priced at \$41.95. Although Skyscape has marketed this excellent product for nurses, this database contains information that other health professionals may wish to use, especially the section about what to tell patients.

HerbalIx (Drug Interaction Facts: Herbal Supplements & Food)

Price: \$69.95

Operating System: Palm or Pocket PC

Although all the databases have some information about drug-herb and herb-herb interactions, HerbalIx contains the most detailed interaction information, including the seriousness of the interactions and how to manage them.

Content: HerbalIx contains 100 monographs and discusses the significance, onset, effect, severity, mechanism and management of the interactions. Users can select a specific drug or herb

from the main index to view all interactions. Additionally, users can search for interactions between particular combinations of herbs and drugs, herbs and herbs, or herbs and food. Herbalix is updated quarterly, and references are included.

When a user selects kava, he or she is presented with a list of 14 interactions, all potential interactions with the class of drugs known as the benzodiazepines. The authors more closely examined the interaction of kava with diazepam, one of the benzodiazepines. The monograph described the interaction as theoretical, based on a single case report of kava interacting with a different benzodiazepine.

Unique Features: The database goes beyond listing interactions and indicates how to manage them. There are several ways to get to this information, and navigation is fairly straightforward. If the user has subscribed to other skyscape databases, he or she can easily go to the complete monograph.

In a Nutshell: Although most databases contain lists of potential interactions, Herbalix contains the most detailed information, including how to manage interactions. Practitioners who need more information can find it in other print and online sources. The reviewers consider this an optional purchase.

Conclusion

While all of these databases contain much of the same basic information, they are each designed with a different user in mind. Potential buyers of medical software designed for the PDA should consider their individual patient-care or educational needs:

- Consider ease of use. A database that is easy to download and use is essential for a fast-paced patient care setting.
- Consider the scope of content. Do users need comprehensive information on thousands of herbal remedies or do they simply need a source covering only the most common herbs?
- Consider currency. Do users need information on the latest herb to hit the market and are they looking for a source that is updated frequently?

The reviewers recommend that when possible, potential buyers should register for trial access to these products for 30 days to determine which database meets their needs. For example, Skyscape provides its products in trial mode that allows potential customers to view the index, the table of contents, and only 10% of their database contents.

A few purchase recommendations:

- Health care practitioners with many patients who use herbal remedies, should consider purchasing NaturalDB.
- Practitioners who only need to look up an herb on an occasional basis should try ePocrates Rx Pro for 30 days to determine if it meets their needs.
- For the practitioner who does not like ePocrates Rx Pro, Nherbal04 offers complete information about common herbs and includes other useful information in the appendixes.
- Consider downloading mobileMICROMEDEX if your institution subscribes to their Healthcare Series and if your PDA has enough memory available to support it.

The authors feel strongly that one important feature missing from all of these databases is adequate help built into the databases. Although help is available at the provider Web sites, the whole point of using a PDA is portability and not having to be tied to a desktop computer. Perhaps future PDA products will include this feature.

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